WHAT IS CLAIMED IS:

1. An optical repeater system, comprising:

a plurality of optical repeaters coupled in series, each configured to receive and convert a radio frequency (RF) analog signal to a first baseband digital electrical signal, sum the first baseband digital electrical signal and a second baseband digital electrical signal transmitted from a previous optical repeater in the series to generate an optical output signal; and

a base station configured to receive and demodulate the optical output signal of a last one of the plurality of optical repeaters in the series.

2. A system of claim 1, wherein the second basebarid digital electrical signal transmitted from a previous optical repeater in the series is a previously summed signal.

3. The system of claim 1, wherein the series connection comprises a daisy chain connection.

4. The system of claim 1, wherein each optical repeater comprises:

a band-pass filter (BPF) configured to filter the received RF analog signal and output a filtered RF analog signal;

an amplifier configured to amplify the filtered RF analog signal with a gain and output an amplified RF analog signal;

a frequency converter configured to convert the amplified RF analog signal to the first baseband digital electrical signal:

a digital delay device configured to delay the first baseband digital electrical signal;

an Optical signal to Electrical signal converter (O/E converter) configured to convert a baseband digital optical signal received from the previous optical repeater to the second baseband digital electrical signal;

a digital summer configured to sum the first baseband digital electrical signal and the second baseband digital electrical signal; and

an Electrical signal to Optical signal digital converter (E/O converter) configured to convert a summed signal outputted from the digital summer to the optical output signal.

5. The apparatus of claim 4, wherein the digital delay device delays the first baseband digital electrical signal to match a round trip delay time of each optical repeater.

6. The apparatus of claim 4, further comprising an automatic gain control (AGC) circuit configured to control the gain of the amplifier, wherein the AGC circuit controls the amplifier to maintain a uniform amplitude of the amplified RF analog signal.

7. The apparatus of claim 1, wherein each of the plurality of optical repeaters is coupled with at least one other of the plurality of optical repeaters by an optical link.

8. The apparatus of claim 7, wherein the optical link comprises an optical cable.

9. The apparatus of claim 1, wherein the last optical repeater is coupled with the base station by an optical cable.

10. A method for receiving in an optical repeater, comprising:

receiving and converting a radio frequency (RF) analog signal to a first baseband digital signal in a first repeater;

summing the first baseband digital signal with a second baseband digital signal received from a second repeater;

Converting an output of the summer to an optical output signal; and

transmitting the optical output signal to a base station.

11. The method of claim 10, further comprising:

receiving the optical output signal in the base station;

converting the received optical output signal to an electrical signal; and

demodulating the converted electrical signal.

12. The method of claim 10, wherein converting the RF analog signal comprises amplifying the RF analog signal with a prescribed gain in accordance with an automatic gain control circuit to maintain a prescribed amplitude of the amplified RF analog signal.

13. The method of claim 10, wherein the first baseband digital signal is delayed to match a round trip delay time of at least one other optical repeater coupled in series.

14. The method of claim 10, further comprising receiving an optical input signal from the second repeater and converting the optical input signal into the second baseband digital signal.

15. The method of claim 10, wherein the second baseband digital signal from the second repeater is a sum of baseband digital signals from a plurality of optical repeaters.

16. The method of claim 10, wherein the optical output signal is transmitted to the base station over an optical cable.

17. A method for receiving in a first optical repeater, comprising:

receiving and amplifying a radio frequency (RF) analog signal;

converting the amplified RF analog signal to a first baseband digital signal;

delaying the first baseband digital signal;

summing the delayed first baseband digital signal and a second baseband digital signal received from a second optical repeater to generate an electrical output signal;

converting the electrical output signal to an optical output signal; and

transmitting the optical output signal to a base station.

18. The method of claim 17, wherein amplifying the RF signal comprises applying a gain to maintain a prescribed amplitude of the amplified RF analog signal in accordance with an automatic gain control (AGC).

19. The method of claim 17, wherein the first baseband signal is delayed by an amount of delay necessary to match a round trip delay time of at least one second optical repeater.

20. The method of claim 17, wherein the first optical repeater is a final optical repeater in a series connected chain of optical repeaters.

21. The method of claim 17, further comprising receiving and optical input signal from the second optical repeater and converting the optical input signal to the second baseband digital signal.

22. The method of claim 21, wherein the optical input signal is received from the second optical repeater over an optical cable.

23. An optical repeater system, comprising:

a first optical repeater configured to receive a first radio frequency (RF) analog signal and output a first baseband digital optical signal;

a second optical repeater coupled to the first optical repeater and configured to receive a second RF analog signal, convert the second RF analog signal to a first baseband digital electrical signal, delay the first baseband digital electrical signal, convert the first baseband digital optical signal to a second baseband digital electrical signal, sum the delayed first baseband digital electrical signal and the second baseband digital electrical signal, and convert the summed signal to a second baseband digital optical signal; and

a base station coupled to the second optical repeater and configured to signal and demodulate the third baseband digital electrical baseband digital electrical

24. The system of claim 23, further comprising an third optical repeater configured to receive a third RF analog signal and output a third baseband digital optical signal, wherein the first optical repeater is configured to convert the first RF analog signal to a fourth baseband digital electrical signal, delay the fourth baseband digital electrical signal, convert the third baseband digital optical signal to a fifth baseband digital electrical signal, sum the delayed fourth baseband digital electrical signal and the fifth baseband digital electrical signals, and convert the sum of the fourth and fifth baseband digital electrical signals to the first baseband digital optical signal.

25. The system of claim 23, wherein each of the first and second optical repeaters comprise:

a band-pass filter (BPF) configured to filter the received RF analog signal and output a filtered RF analog signal;

an amplifier configured to amplify the filtered RF analog signal with a gain and output an amplified RF analog signal;

a frequency converter configured to convert the amplified RF analog signal to the first baseband digital electrical signal:

a digital delay device configured to delay the first baseband digital electrical signal;

an Optical signal to Electrical signal converter (O/E,converter) configured to convert a baseband digital optical signal received from the previous optical repeater to the second baseband digital electrical signal;

a digital summer configured to sum the first baseband digital electrical signal and the second baseband digital electrical signal; and

an Electrical signal to Optical signal digital converter (E/O converter) configured to convert a summed signal outputted from the digital summer to the optical output signal.

26. An optical repeater system, comprising:

a first optical repeater configured to receive and convert a first radio frequency (RF) signal to a first baseband digital electrical signal and convert the first baseband digital electrical to a first optical signal;

a second optical repeater coupled to receive the first optical signal from the first optical repeater and configured to receive and convert a second RF signal to a second baseband digital electrical signal, convert the first optical signal to an input electrical

signal, add the second baseband digital electrical signal to the input electrical signal to generate a summed electrical digital signal, and convert the summed electrical digital signal to a second optical signal; and

a base station configured to receive and demodulate the second optical signal.

27. The system of claim 26, wherein the first optical repeater is further configured to receive an external optical signal from a third optical repeater, convert the external optical signal to a second input electrical signal, and sum the second input electrical signal with the first baseband digital electrical signal and convert the sum to the first optical signal.

28. The system of claim 26, wherein each of the first and second optical repeaters comprise:

a band-pass filter (BPF) configured to filter the received RF analog signal and output a filtered RF analog signal;

an amplifier configured to amplify the filtered RF analog signal with a gain and output an amplified RF analog signal;

a frequency converter configured to convert the amplified RF analog signal to the first baseband digital electrical signal:

a digital delay device configured to delay the first baseband digital electrical signal;

an Optical signal to Electrical signal converter (O/E converter) configured to convert a baseband digital optical signal received from the previous optical repeater to the second baseband digital electrical signal;

a digital summer configured to sum the first baseband digital electrical signal and the second baseband digital electrical signal; and

an Electrical signal to Optical signal digital converter (E/O converter) configured to convert a summed signal outputted from the digital summer to the optical output signal.